

Ulua Tagging Project & Moi Tagging Program

Fishing Survey Summary



SPECIAL EDITION, October 2008

1151 PUNCHBOWL STREET, ROOM #330, HONOLULU, HAWAII 96813

MAHALO EVERYONE!!!

A BIG MAHALO goes out to all of our volunteer ulua, papio and moi anglers for taking the time to fill out the Proposed Management Survey Summaries for both the ulua and moi fisheries. It's always a challenge when it comes to revising these regulations because these fisheries are highly regarded for both food and sport and DAR's goal is to have these local traditions continue while maintaining these resources for our generation as well as future generations to come. Both the Ulua Tagging Project and Moi Tagging Program have provided quite a bit of information some of which will be presented and shared in this summary newsletter to provide the background for some of the survey questions that were asked of you.

These surveys were conducted to gather your thoughts as anglers of the ulua, papio and moi. We figured the best place to start was with you, our volunteer taggers, and with our local commercial fishermen who fish for the ulua, papio and moi because as local fishermen, all of you are our eyes and ears and know first hand from experience what the conditions of our ulua and moi resources are in your respective areas. From your responses, DAR can assess how local anglers feel about these preliminary proposals. It is from here that we can adjust the framework of what was originally proposed, consider relevant scientific information to reflect your thoughts and use these proposals at public meetings to receive further comment and discussion. As a sector of the general public, all of your responses collectively reflect what other sectors may also be thinking and bring DAR a step closer to what would be the best management strategies for these species to maintain our fisheries. We are grateful and thank you very much for participating in this survey and for sharing your knowledge of the ulua, papio and moi fisheries for managing and maintaining these important fisheries for everyone in Hawaii.

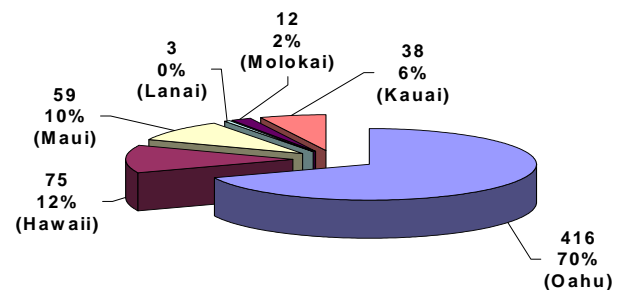
With Much Mahalo,
Thomas Iwai Jr. & Annette Tagawa
Aquatic Biologists

Ulua/papio Survey Results:

ULUA & PAPIO ANGLERS' SURVEY PROFILE

Over 2700 surveys regarding the ulua and papio fisheries were mailed out to volunteer anglers statewide with the Ulua Tagging Project as well as to commercial fishermen that fish for ulua and papio. A total of 616 anglers responded for the papio/ulua survey.

As a Hawaii resident, which island do you reside on?



Are you a registered tagger (Ulua Tagging Project participant)?

YES: 468 NO: 91 DON'T KNOW: 15

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Out of 616 papio/ulua surveys/responses, 557 (90%) classified themselves as recreational fishermen, 48 (8%) considered themselves commercial fishermen and 138 (22%) identified themselves as subsistence fishers. Some anglers identified in more than one category accounting for more than 616 responses.

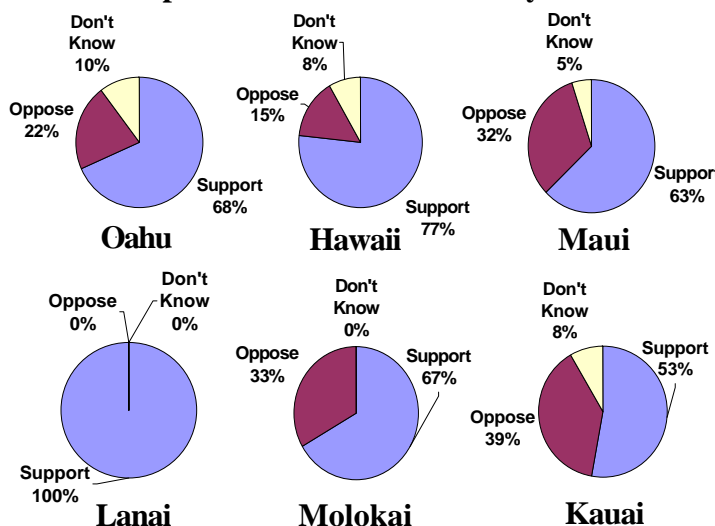
Papio/ulua fishers by Island

	Recreational	Commercial	Subsistence
Oahu	397	28	84
Hawaii	65	7	23
Maui	51	5	15
Lanai	3	0	0
Molokai	11	0	7
Kauai	30	8	9

MARINE GAMEFISH STATUS

There is no doubt that the ulua and papio fishery is considered the biggest recreational fishery in the entire state. The value of these species as a sportfish prompted its potential designation as a marine gamefish. By definition, a GAMEFISH is any fish that is regularly caught for sport and prized for the sport involved in catching it. In Hawaii, you could almost substitute "ULUA" for "GAMEFISH". According to the survey, many of you were asked if you would support or oppose the designation of the ulua/papio as a marine gamefish which would prohibit the sale of regulated ulua and papio. Out of 596 responses 405 (68%) SUPPORT the designation of ulua/papio as a marine gamefish, 137 (23%) OPPOSE this designation and 54 (9%) DON'T KNOW.

Response to Gamefish Status by Island



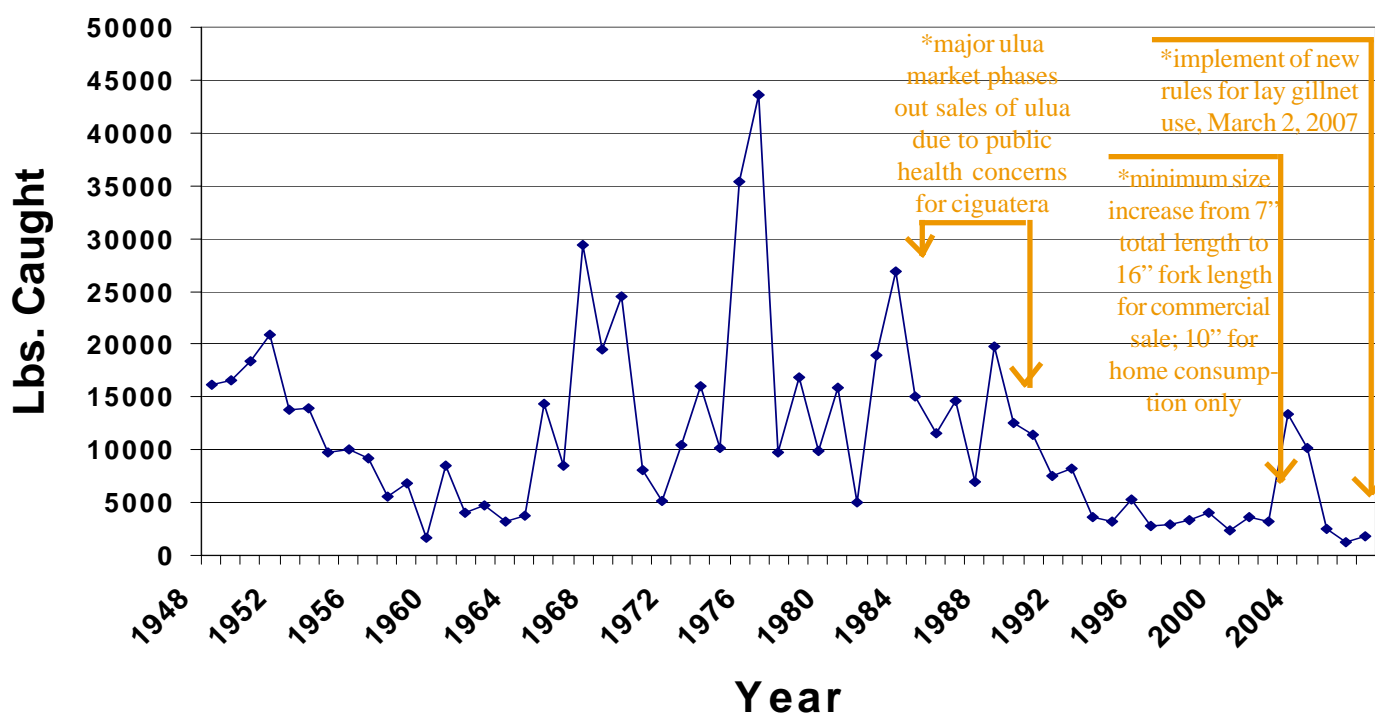
What difference will a "marine gamefish status" make for all ulua and papio fishers?

1. Designating the ulua/papio as a marine gamefish will eliminate the commercial sale of these species which means the only way that someone can eat a papio or ulua is if they catch it themselves or if someone is willing to catch it for them.
2. Only hook/line or spear will be the allowed gear types used to take ulua and papio.

How much of the ulua/papio fishery is affected by commercial fishing?

Up until the mid 1980's, an offshore surround net fishery existed specifically for the white ulua. This fishery selectively targeted white ulua and white papio that were between 1 lb. to 30 lbs. in size range which was considered the optimal sizes to obtain best market

Figure 1. Commercial Net landings of Jacks, MHI Areas Only, 1948 - 2007



values. Fishermen purposely did not target the larger “gorilla” sized white ulua (over 30 lbs. in size) because these larger fish had very little market value and their fishing nets and equipment were badly damaged and destroyed in the process due to the size and strength of these larger animals. The surround net fishery targeting schools of large white ulua came to a halt in the mid 1980’s due to public health and safety issues over high incidences of ciguatera fish poisoning and liability concerns by fish dealers. With the major market for ulua closed, many commercial fishermen stopped fishing for the white ulua. This caused a major decrease in the commercial net landings reported for the ulua fishery which is often misinterpreted as a decline in abundance.

The market for the smaller 3 lbs. size white and other papio has remained constant. As of 2003, the minimum size regulation for the commercial sale of papio was increased to 16” fork length (approximately 3 lbs.) For the commercial fishermen, targeting the 3lbs. size papio is very difficult since the schools are often mixed with smaller undersized and larger less marketable sized papio. For these reasons, the consensus amongst commercial fishermen is that they are gradually giving up targeting the ulua and papio species altogether.

With the limitations placed on commercial fishermen (no market value due to ciguatera, 16-inch FL size limit, etc.), it’s not worth it for them to target this fishery as their main source of income. With approximately 175 licensed commercial fishermen who report selling ulua and papio, the majority of these are incidentally caught while fishing for other species. Based on the commercial net landings of jacks (Fig. 1), the total landings for each year for 2005 through 2007, are under 2600 lbs. for each calendar year. In the year 2007, based on the tagging data, volunteer taggers alone with pole and line have released 2636 ulua and papio ranging in size from 4 to 52.5 inches in fork length that is equivalent to approximately 6182 lbs. of fish which were all RELEASED! Figure 2 clearly shows that in more recent years the ulua and papio resources are utilized more by the recreational and subsistence fishermen than the commercial fishermen. Volunteer anglers have tagged and released more than 3 times the poundage of ulua and papio that have been landed by

commercial fishermen. This provides little justification to eliminate the commercial sale of these species.

However, this does not mean that we should not propose regulations to continue conserving the fishery. On the contrary, since our island populations are always exponentially increasing and the ulua and papio resources are limited by how much food and space is available for them by its surrounding habitats, there needs to be some limits in place to insure that this fishery remains healthy into the future.

One or more individuals provided the following additional comments regarding marine gamefish designation status:

1. Marine Gamefish status if it includes only omilu and white papio/ulua or only the white ulua/papio by itself. The majority of the fishery is mostly omilus and whites. Tagging data shows that the omilus and whites make up over 86% of the ulua and papio fishery.
2. Do not implement a complete commercial ban. There should be some kind of compromise otherwise it will put more people out of work.
3. Some commercial fishermen do not target ulua or papio but will catch quite a few while fishing for other stuff.

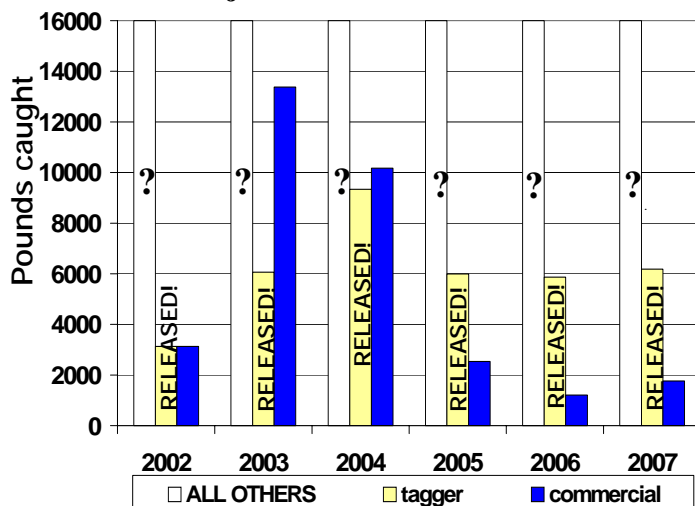
SPECIES TO BE INCLUDED UNDER PROPOSAL FOR ULUA AND PAPIO

The proposal would specify that papio/ulua should include:

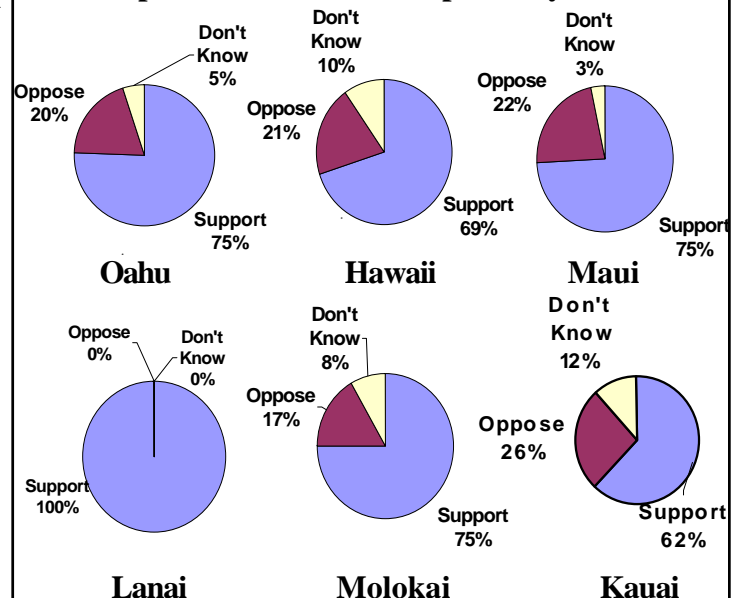
1. Kagami ulua
2. Paopao (Yellow ulua)
3. Gunkan (black ulua)
4. Sasa (Menpachi ulua)
5. Barred Jack
6. White Ulua
7. Omilu
8. Yellow Spot

All Islands	
Support:	436 (74%)
Oppose:	119 (20%)
Don't Know:	34 (6%)

Figure 2. Pounds of Ulua and Papio Caught within A Year by Commercial Fishermen and Ulua Tagging Project Volunteer Fishermen



Response to include ulua species by Island



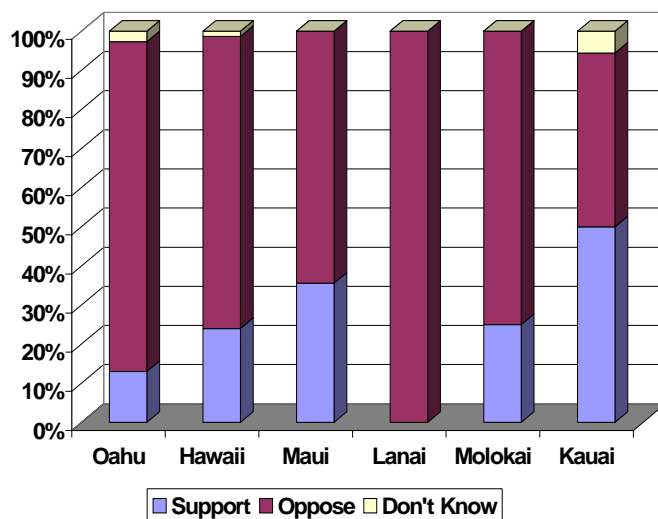
One or more individuals provided the following additional comments regarding the inclusion of 8 species of jacks under the proposed regulations:

1. Not all of these species are caught within the nearshore waters of Hawaii.
2. These species are most abundant around the world. Why regulate them if this is so?
3. Proposed regulations should include Yellow Spot, Gunkan
4. Cannot lump different types of Caranx and trevally into one group when there is a diverse range in growth, travel and season. One size does not fit all.
5. Should include butaguchi, dobe and omaka for regulation except with different rules for omaka because this species is smaller.

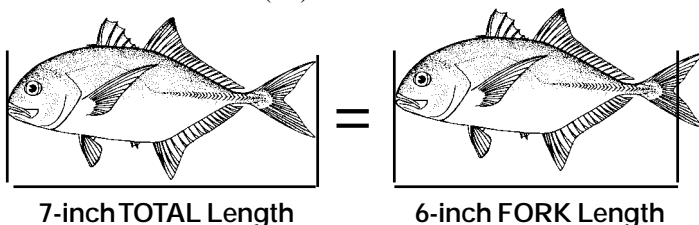
6" FORK LENGTH OR 10" FORK LENGTH MINIMUM SIZE?

Out of 600 responses 114 (19%) SUPPORT reducing the minimum size from 10" fork length to 6" fork length, 472 (79%) OPPOSE reducing the minimum size and 14 (2%) DON'T KNOW.

Figure 3. Response to Reduction of Minimum Size from 10" Fork Length to 6" Fork Length by Island



Prior to 2003, the regulation stated that the minimum size for papio was 7-inches TOTAL LENGTH (TL) which is equivalent to 6-inches FORK LENGTH (FL).



When the 10-inch FL minimum size was established in 2003, the tagging data showed that for both the white papio and omilu, there was a noticeable increase of 9" to 10" FL fish being caught after 2002. Since then, a number of fishermen have also noticed an increase in the size of the papio they were catching. Many of you who responded to the survey also stated that you feel that the 10" minimum size has helped to improve the papio fishery. There is no doubt that the 10" FL minimum size has had a positive impact on the papio fishery.

With the minimum size increase, we may expect to see an increase in the numbers of 6" FL (equivalent to 7" TL) to 6.9" FL papio sampled through the tag and release program since this size class is supposedly no longer being harvested. Since 2003 there has also been an increase in volunteer anglers which caused an increase in tag and release efforts. To reduce the bias from an increase in tagging effort, the percentage of 6" to 6.9" FL papio out of the total number of white ulua/papio and omilu that were tagged was looked at to determine if there was a noticeable increase in the numbers of 6" to 6.9" FL papio for both species.

Figure 4a. Percentage of Omilu Measuring 6" to 6.9" FL Tagged & Released by Project Volunteers

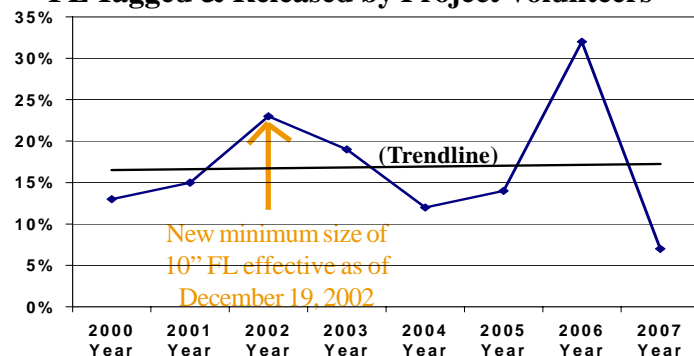
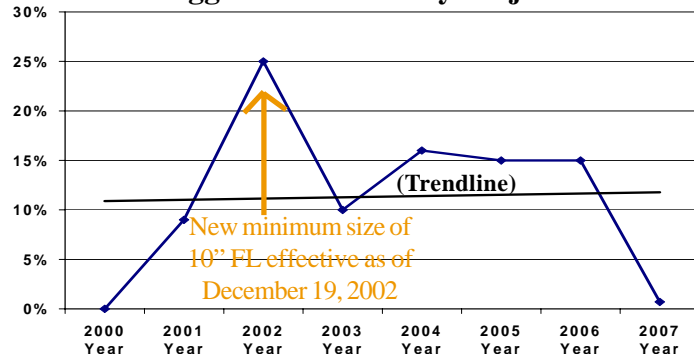


Figure 4b. Percentage of White Papio Measuring 6" to 6.9" FL Tagged & Released by Project Volunteers



Assuming that the volunteer tag and release efforts reflect a representative sample cross section for the ulua and papio resources, Figure 4a shows the percentages of 6" to 6.9" FL omilu tagged and released by volunteer anglers out of the total omilu that were tagged and released per calendar year. Figure 4b represents the same scenario for the white ulua/papio. The percentages make up of 6" to 6.9" FL omilu and white papio show that the percentages for this size class for both species fluctuates every year. Fluctuations reflect good and/or bad recruitment years based on limited food sources, spawning conditions from the previous year, changes in habitat or habitat limitations, climate changes, ocean current patterns, etc. However, the trendline for the omilu in Figure 4a shows that overall, the percentage of 6" to 6.9" FL omilu has remained fairly steady with a very slight increase possibly indicating that the increase in minimum size has made a minute difference in the percentage of 6" to 6.9" FL fish being sampled/caught by volunteer anglers. The trendline for the white papio in figure 4b shows that overall, the percentage of 6" to 6.9" white papio has increased over time reflecting anecdotal

observations from various fishermen that from their point of view, the white papio population has been increasing.

With the downturn in commercial landings, the slight trend increase in the percentages of 6" to 6.9" FL omilu and white papio sampled and potential revised bag limits (see Revised Bag Limits for Ulua & Papio section below), there was some thought given to the fact that perhaps the papio resources could afford a limited harvest for these smaller papio with minimal detriment to the increase of 9 to 10 inch FL papio that we are seeing today. The intention is to allow for some continuation of our local tradition, especially for the keiki and seniors, with the pole and line fishery that exists for the smaller 6-inch FL papio species when the minimum size was 7-inch TL.

One or more individuals provided the following additional comments regarding reducing the minimum size of papio from 10" fork length to 6" fork length:

1. Do not reduce the minimum size to 6" fork length because that is too small. It's too drastic of a change.
2. Keep the minimum size at 10" fork length. It should be like this all year round no matter where the location is.
3. Even 10" fork length is questionable. This regulation was a source of contention and distraught for the many shoreline fishermen who fed themselves with the fish they could only interact with close to shore. This is precisely where the smaller papio live & feed. Without a boat or avenue to reach fishing grounds where the larger papio can be found, many of our neighbors gave up on targeting papio for their dinner tables.
4. We need to let the papio grow because we don't have that much fish any more.
5. Less than 3 lbs. (= approximately 17 inches in length) should be thrown back.
6. All papio under 16" FL should be for catch and release only.
7. Minimum size should be related to reproduction size and not to what people can catch. Maximum sizes are good so that the genes can be kept in the population.
8. Add size range to protect producers. For example, a range of 14" to 18" fork length for omilu should be protected.
9. 6" papio should only apply to retired people (60+ years old) who only pole fish for fun and food. They do not aggressively whip for papio.
10. Minimum size for recreational and commercial fishermen should be the same otherwise it wouldn't be fair.
11. People will take smaller fish anyway even though the rule says it's bigger.

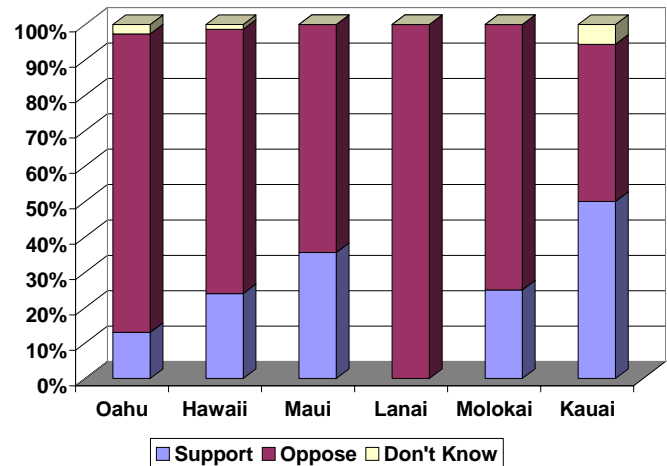
REVISED BAG LIMITS FOR ULUA & PAPIO

Presently the bag limit for any combination of ulua and papio is 20 per person per day measuring 10 inches FL and larger. One proposal being considered would reduce the bag limit to 5 papio (measuring between 6" FL to 24" FL) per person per day and 1 ulua (measuring over 24" FL) per person per day. The most common distinction that is used locally to distinguish between an ulua and a papio is that anything 10 lbs. and over in weight is classified as an ulua and anything under 10 lbs. in weight is considered a papio. A 10 lbs. ulua measures approximately 24" FL.

Papio

Out of 550 responses 206 (37%) SUPPORT setting a bag limit of 5 papio per person per day measuring between 6" to 24" FL, 321 (58%) OPPOSE this bag limit for various reasons (see other comments regarding papio bag limits) and 28 (5%) DON'T KNOW.

Figure 5. Response to Revised Papio Bag Limit by Island



Response to Alternate Suggestions for Revised Minimum Size for Papio by Island

	none	6-inch	7 to 9 inch	10 inch	11 to 12 inch	14 to 24 inch	Totals by Island
Oahu	1 (<1%)	86 (24%)	32 (8%)	175 (48%)	55 (15%)	15 (4%)	364 (100%)
Hawaii	0 (0%)	23 (38%)	9 (15%)	18 (29%)	9 (15%)	2 (3%)	61 (100%)
Maui	0 (0%)	23 (43%)	6 (11%)	14 (27%)	8 (15%)	2 (4%)	53 (100%)
Lanai	0 (0%)	1 (33%)	0 (0%)	2 (67%)	0 (0%)	0 (0%)	3 (100%)
Molokai	0 (0%)	2 (22%)	0 (0%)	7 (78%)	0 (0%)	0 (0%)	9 (100%)
Kauai	0 (0%)	16 (64%)	1 (4%)	7 (28%)	1 (4%)	0 (0%)	25 (100%)

Response to Alternate Suggestions for Revised Maximum Size for Papio by Island

	none	8 to 23 inch	24 inch	25 to 60 inch	Totals by Island
Oahu	4 (1%)	29 (10%)	234 (82%)	20 (7%)	287 (100%)
Hawaii	2 (4%)	5 (9%)	44 (81%)	3 (6%)	54 (100%)
Maui	2 (4.5%)	2 (4.5%)	37 (82%)	4 (9%)	45 (100%)
Lanai	0 (0%)	0 (0%)	3 (100%)	0 (0%)	3 (100%)
Molokai	2 (22%)	0 (0%)	7 (78%)	0 (0%)	9 (100%)
Kauai	2 (8.4%)	2 (8.4%)	19 (79%)	1 (4.2%)	24 (100%)

Response to Alternate Suggestions for Papio Bag Limit by Island

	no limit	1,2 & 4	3	5	6 to 8	10 to 15	20+	Totals by Island
Oahu	5 (1.4%)	46 (13%)	50 (14%)	196 (54%)	25 (7%)	35 (10%)	2 (0.6%)	359 (100%)
Hawaii	1 (1.6%)	8 (12.9%)	12 (19.3%)	35 (56.4%)	2 (3.2%)	3 (5%)	1 (1.6%)	62 (100%)
Maui	1 (1.8%)	3 (5.5%)	3 (5.5%)	36 (66.7%)	3 (5.5%)	8 (15%)	0 (0%)	54 (100%)
Lanai	0 (0%)	0 (0%)	2 (67%)	1 (33%)	0 (0%)	0 (0%)	0 (0%)	3 (100%)
Molokai	0 (0%)	1 (12.5%)	2 (25%)	2 (25%)	0 (0%)	2 (25%)	1 (12.5- %)	8 (100%)
Kauai	1 (3.6%)	3 (10.7%)	1 (3.6%)	16 (57.1%)	1 (3.6%)	6 (21.4%)	0 (0%)	28 (100%)

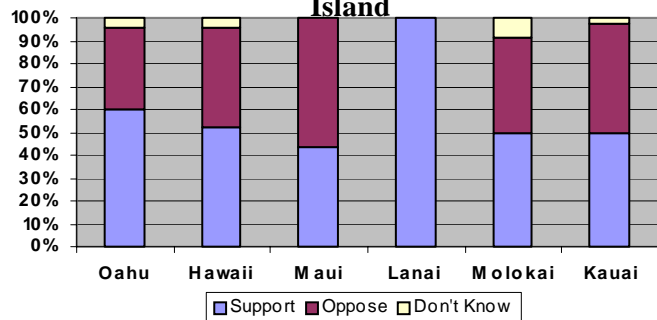
One or more individuals provided the following additional comments regarding alternate minimum size, maximum size and bag limit for papio:

1. Would like a higher bag limit rather than a smaller size limit.
2. Will the bag limit be the same for recreational and commercial fishermen? Bag limits should be different for commercial fishers.
3. Suggest limit of 4 for Oahu. DLNR should have some flexibility to vary bag limits as stocks rise and fall and have a separate bag limit per island as it applies.
4. How will the bag limit be handled with regard to nets?

Ulua:

Out of 593 responses 337 (57%) SUPPORT setting a bag limit of 1 ulua per person per day measuring 24" fork length and larger, 233 (39%) OPPOSE this bag limit for various reasons (see other comments regarding ulua bag limits) and 23 (4%) DON'T KNOW.

Figure 6. Response to Revised Ulua Bag Limit by Island



Response to Alternate Suggestions for Minimum Size for Ulua

	no minimum size	6" to 20"	24"	25" to 52"	Totals by Island
Oahu	0 (0%)	106 (25%)	274 (65%)	43 (10%)	423 (100%)
Hawaii	0 (0%)	13 (24%)	35 (64%)	7 (12%)	55 (100%)
Maui	0 (0%)	13 (26%)	32 (64%)	5 (10%)	50 (100%)
Lanai	0 (0%)	2 (67%)	1 (33%)	0 (0%)	3 (100%)
Molokai	1 (9%)	5 (46%)	3 (27%)	2 (18%)	11 (100%)
Kauai	1 (4%)	3 (11%)	18 (67%)	5 (18%)	27 (100%)

Response to Alternate Suggestions for Ulua Bag Limit by Island

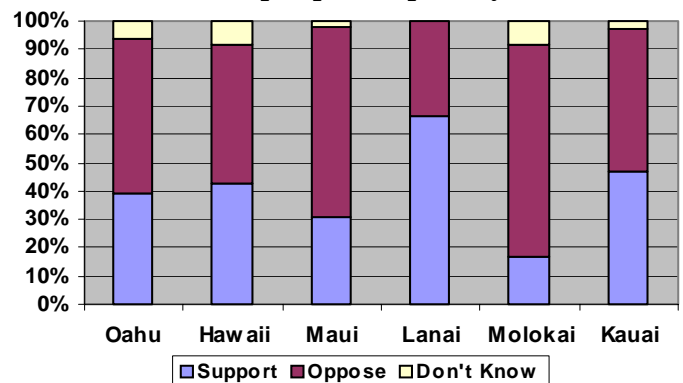
	no bag limit	1	2 to 3	4 to 25	Totals by Island
Oahu	0 (0%)	203 (55%)	105 (28%)	63 (17%)	371 (100%)
Hawaii	1 (2%)	32 (49%)	20 (31%)	12 (18%)	65 (100%)
Maui	1 (2%)	21 (40%)	20 (39%)	10 (19%)	52 (100%)
Lanai	0 (0%)	2 (67%)	0 (%)	1 (33%)	3 (100%)
Molokai	0 (0%)	3 (30%)	5 (50%)	2 (20%)	10 (100%)
Kauai	0 (0%)	19 (62%)	6 (19%)	6 (19%)	31 (100%)

One or more individuals provided the following additional comments regarding alternate minimum size & bag limit for ulua:

1. Suggest a limit of 2 ulua per month or less.
2. Always felt too many uluas are taken by fishermen. The proposed bag limit is good. It will allow reproduction which will keep the papio fishery going.
3. Bag limit of one ulua is too conservative. Sometimes you'll get 2 strikes per pole and both fish have to be gaffed. Releasing a gaffed fish is a waste because it will probably die. A bag limit of 2 ulua per day would be more reasonable.
4. Allow unlimited take of ulua because anything over 24 inches fork length is so rare.
5. All ulua fishermen use 2 rods or more for ulua. How will it be enforceable when one ulua is landed before midnight and the second one is landed after midnight?
6. Bag limit of only 1 ulua when you're fishing from a cliff? It would be a waste of gas with only one rod.
7. What if I catch more than 1 ulua per day? What a waste. It should be 5 ulua per day with no size restriction.
8. Do I need to throw back my 100 pounder if it's my 2nd ulua? We need a bag limit of 2 to 3 ulua per day, not one per day.
9. Have fishermen release smaller ulua between 10 to 20 lbs.
10. If I happen to hook up with 2 uluas in a day, the second one always gets tagged and released.
11. Some feel that it's rare to catch more than one per trip. But when you do, it's the thrill of a lifetime!

Out of 567 responses, 222 (39%) SUPPORT a total bag limit of 6 fish per day consisting of 5 papio measuring between 6 to 24 inches FL and 1 ulua measuring over 24 inches FL, 312 (55%) OPPOSE this bag limit for various reasons (see above comments regarding ulua bag limits) and 33 (6%) DON'T KNOW.

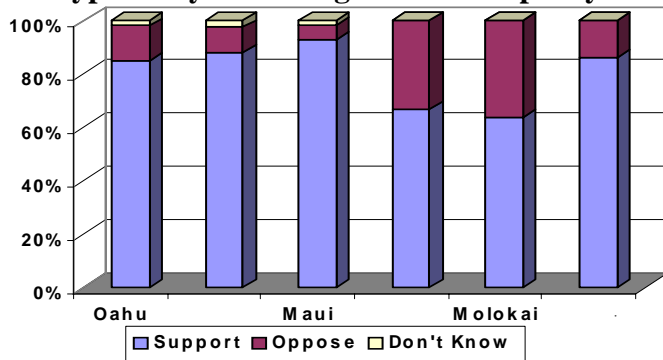
Figure 7. Response to establishing a total bag limit of 6 fish (5 papio between 6" to 24" FL + 1 ulua over 24" FL) per person per day



OPINIONS ON LIMITING GEAR TO TAKE GAMEFISH

Part of the discussions regarding a marine gamefish status for this species may involve limiting the types of fishing gear used to fish for ulua & papio. Out of 567 responses, 485 (85%) SUPPORT allowing only hook/line or spear to be used to take ulua and papio, 371 (13%) OPPOSE and 11 (2%) DON'T KNOW.

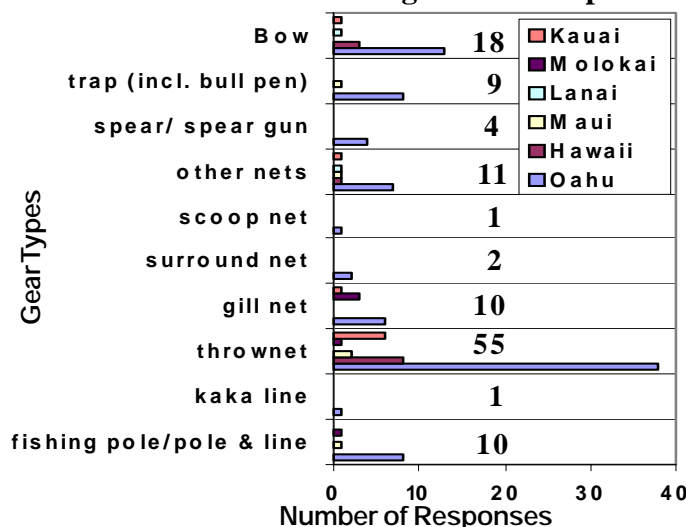
Figure 8. Response to Allowing Hook/Line or Spear Gear Types Only for Taking Ulua and Papio by Island



Other comments regarding gear restrictions for ulua and papio:

1. There needs to be a separate limit for spear fishermen because they shoot a lot of fish at one time. Spearfish limits proposed not only for papio but for other species too.
2. No lay nets. They ruined our fisheries.
3. No spearing or traps.
4. I support the size and bag limits without gear restrictions. If the size and bag limits are set, there is no need for gear restrictions because it doesn't matter how you harvest the fish if you follow and fish within the size and bag limits.

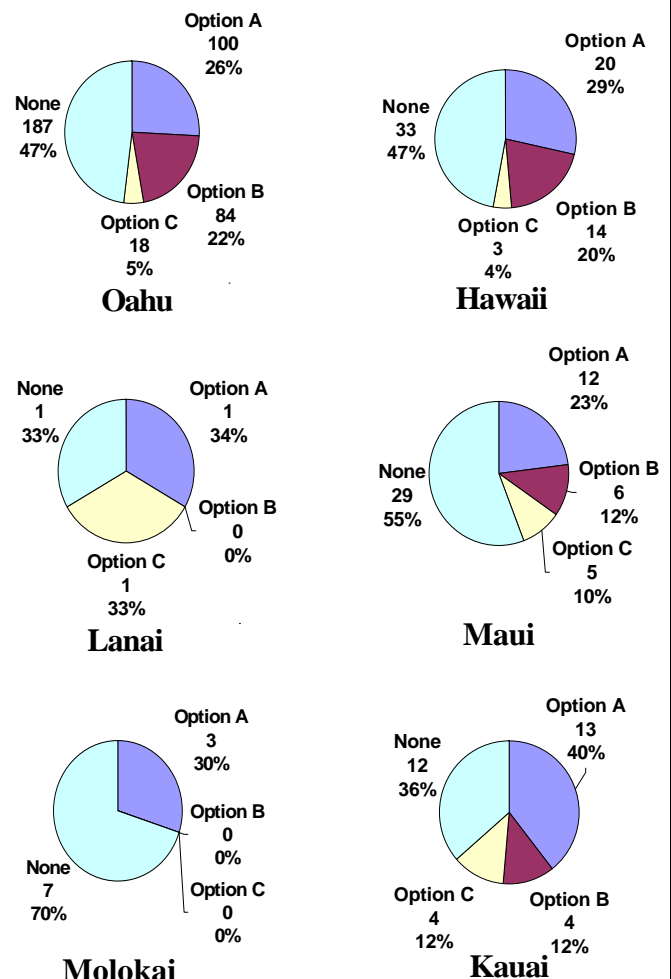
Figure 9. Other Types of Fishing Gear That Should Be Allowed for Harvesting Ulua and Papio



TOTAL PACKAGE PROPOSAL OPTIONS A, B OR C

The survey question regarding choosing between Options A, B or C reflects all the proposed regulations with different scenarios for Options A, B and C allowing for some harvest of papio measuring 6 inches fork length to support a pole & line fishery.

Which Proposal Do You Support?



Option A

- a) Applies Statewide year round to all papio/ulua species except for Dobe, cottonmouth, butaguchi and omaka
- b) Marine gamefish species means no commercial sale and only can be taken with certain sportfishing gears
- c) Minimum size reduced from 10" to 6" FL with no take under minimum size
- d) Maximum size of 24" FL with a bag of one fish/person/day over this size
- e) Bag limit of 5 of all species between the sizes of 6" - 24" FL
- f) Total bag limit of 6 fish (5 between 6-24" + 1 over 24")
- g) Current total bag limit of 20 for all Caranx and Carangoides would be changed
- h) May be taken only with hook and line with landing net or spear (bowfishing OK)

Comments and review for Option A:

Option A is the combination of all the proposed regulations identified in this survey for the ulua & papio. The idea behind lowering the minimum size to 6" FL is to allow for a limited harvest of fish in this size class to accommodate the pole & line fishery, especially for the keiki and seniors, since this was the size equivalent to what the minimum size was previously in 2002.

The ulua are known to be broadcast spawners which means that when they reproduce, their eggs are scattered into the water column

for fertilization and there is no additional parental care whatsoever. Survival is dependent on optimal water conditions, ocean currents and sheer luck in order to survive let alone being able to grow into an ulua. An ulua may spawn millions of eggs, but not all of them are viable and/or fertilized and/or able to survive to grow into an ulua. Along the way through each growth stage, many are eaten as a food source by other predators while others may not be able to find a good food source and end up dying in the planktonic stage. If they are lucky enough to reach 6" FL within a year, many of them are lost to other inshore predators as food sources or there may not be enough food for themselves to eat and grow. A fish's survival is determined by its ability to find food and avoid predation.

By reducing the current bag limit of 20 per person per day to a bag limit of 5 per person per day, this would limit the amount of 6" FL fish that would be harvested and still allow a good number of fish to grow to larger size classes. Option A allows for the most generous harvest of fish between 6" to 24" FL with regard to the proposed regulations.

Other comments for Option A:

- 1) More would support Option A without items b, c, e, f, & g.

Option B - Same as Option A except minimum size 6" FL applies only between November to July; rest of year 10" minimum size applies

- a) Same as Option A
- b) Same as Option A
- c) Minimum size reduced from 10" to 6" FL with no take under minimum size during the months between November to July. 10" minimum size only applies during the months between August to October.
- d) Same as Option A
- e) Bag limit of 5 of all species between the sizes of 6" - 24" FL during November to July. Bag limit of all species between the sizes of 10" - 24" FL during August to October.
- f) Total bag limit of 6 fish (5 between 6-24" during November to July; 5 fish between 10"-24" during August to October + 1 over 24" applicable all year round)
- g) Same as Option A
- h) Same as Option A

Comments and review for Option B:

This option is similar to Option A except for the minimum size of 6" FL applying only between the months of November to July and a minimum size of 10" FL applies to the months between August to October.

The suggestion of lowering the minimum size to 6" FL only during the months between November to July is based on what the tagging data has shown us throughout the years. The majority of the omilu and white papio recruit to the shoreline areas every year during the summer months of July and August. During this time the majority of them are approximately 6" FL and will grow between 1 to 2 inches per month and this accelerated growth rate will slow down around October. By October, the majority of these fish will have reached approximately 9" FL at which time they will migrate out of the nearshore areas and begin to look for food items that are probably larger and more appropriate for their

size. The last few recruits that are under 9" FL will remain near the shoreline and their growth will be very minimal from 0 to 0.5 inches per month until next July when there is a food source available for them again.

Allowing the harvest of 6" FL during the months of November to July would even further limit the harvest of fish in this size range than in Option A since the majority of the papio would have moved away from the shoreline during August to October. This would further limit the amount of 6" FL fish that would be harvested while allowing a larger majority of the year's papio recruits the chance to grow larger. Option B allows for the most conservative harvest of fish between 6" to 24" FL with regard to the proposed regulations.

Other comments for Option B:

- 1) Combine Option C with Option B

Option C - Same as Option A except minimum size 6" FL applies only to the following areas: Haleiwa Harbor, Ahukini Pier, Nawiliwili Harbor, Kahului Harbor, Ala Wai Canal, Heeia Kea Harbor, Hilo Harbor, Waiakea PFA, Kaunakakai Harbor and Manele Harbor.

- a) Same as Option A
- b) Same as Option A
- c) Minimum size reduced from 10" to 6" FL only within above mentioned areas. 10" minimum size applies everywhere else.
- d) Same as Option A
- e) Bag limit of 5 of all species between the sizes of 6" - 24" FL only within above mentioned areas. Bag limit of all species between the sizes of 10" - 24" FL applies everywhere else.
- f) Total bag limit of 6 fish (5 between 6-24" only within above mentioned areas; 5 fish between 10"-24" applies everywhere else)
- g) Same as Option A
- h) Same as Option A

Comments and review for Option C:

This option is similar to Option A except for the minimum size of 6" FL applying only to Haleiwa Harbor (Oahu), Ahukini Pier and Nawiliwili Harbor (Kauai), Kahului Harbor (Maui), Ala Wai Canal and Heeia Kea Harbor (Oahu), Hilo Harbor and Waiakea PFA (Big Island), Kaunakakai Harbor (Molokai) and Manele Harbor (Lanai).

The suggestion of allowing the 6" FL minimum size in a few select areas that are safe and accessible for anglers is to allow us to continue having the pole & line fishery that exists for this species, especially for the keiki and seniors. Tagging data has demonstrated that the majority of omilu and white papio recruit to a number of certain areas at each island. By allowing the take of 6" FL papio in only one or two of these areas per island and placing a 10" FL minimum size for the remaining areas allows for some harvest of 6" FL papio for the pole and line fishery in a few areas while protecting the fish in all the remaining areas to allow them to grow to a larger size. Option C allows for a more conservative harvest limit for 6" FL papio than Option A.

Other comments for Option C:

- 1) Many like Option C for the benefit of kids and seniors.

- 2) Minimum size should be 8" FL for harbors and 10" everywhere else.
- 3) Pearl Harbor should be included as an area where 6" FL papio may be harvested because I know and see many people fishing in Pearl Harbor.

General comments for Options A, B or C:

- 1) Don't like any of the Options.
- 2) I'm undecided which Option to choose because I need more information to make a decision.

ADDITIONAL CONCERNS & COMMENTS FOR ULUA & PAPIO

ENFORCEMENT

The Division of Conservation and Resources Enforcement (DOCARE) has the difficult and challenging task of enforcing existing resource regulations not only for DAR, but also for all the other Divisions (Division of Forestry & Wildlife, Division of State Parks, Division of Boating & Ocean Recreation, etc.) within the Department of Land & Natural Resources. They are tasked with enforcing resource regulations running from mauka to makai on every island. In addition, traveling long distances, traversing rough terrain, dealing with traffic congestion, lack of adequate manpower, etc., all compound to the problems at times in responding "quickly" when a violation is reported. However, most anglers feel that there is just not enough enforcement personnel to enforce the fishing regulations already in place. Some feel that the problem is not with the regulations itself, but with the lack of enforcement regarding enforcing the regulations. The following are generalized comments from surveyed anglers:

1. We need more regulations and enforcement. Regulations would work if they were enforced otherwise it helps no one. Enforcement determines the success of the regulations.
2. Enforcement doesn't have enough manpower. We need to use community programs and volunteers to help enforce our regulations.
3. We need 24-hour round-the-clock enforcement available.
4. Game Wardens are too slow to respond. They also need to be more strict.
5. Everyone who breaks the regulations should be prosecuted.
6. Most anglers I know follow the rules, release all undersized marine species and let other anglers know when they do not follow the rules.
7. Since Ulua fishing is a night time activity, who will enforce or regulate the bag limits at night?

Fishing License:

1. Would consider a fishing license for moi and papio. Not an annual one, but maybe a 5-year license.

2. The state should charge a yearly saltwater license fee. The collected monies would be given back to DLNR to be used toward better enforcement.
3. The state should have a recreational fishing license like California where there is a license fee and an education program to go along with the fishing license.
4. Monies from licenses can pay for assistance in implementing Marine Protected Areas, gill net laws, size regulations, etc.

DAR (overall in general):

1. DAR is doing a great job with the tagging project. Keep it up!
2. Since the tagging program began, there has been an increase in the ulua population. There should be more programs like this for other gamefish species like Oio.
3. Mahalo! Don't let them take away our rights to fish.
4. Thank you for working to keep the ulua and papio fisheries sustainable. Our kids need these kinds of rule changes to teach them about conservation.
5. Thank you for sending the survey. I really like this tagging program and appreciate the efforts to keep it going.
6. Keep the tagging project alive because it will do more good for the fishery than the changes in the minimum size and bag limits.
7. Why is the state heavily researching only ulua, papio and moi?

All Other issues & suggestions:

1. We used to be able to fish off of the piers in Hawaii and now we can't. Why is it that we can fish in state harbors and not the piers? There should be a fishing pier in town for us to fish at.
2. The state should make the area from the Natatorium to Diamond Head a permanent no-take zone.
3. Stop the sale of fish under 12" FL.
4. This survey is a waste of paper. Leave the regulations as they are and don't change it. There is nothing wrong with the current regulations.
5. Consider establishing papio catch and release Fishery Management Areas.
6. Farm raise (culture) and release all types of uluas and papios.
7. Should regulate oama, papio & ulua fishing just like Waikiki-Diamond Head where fishing is allowed every other year.
8. Should regulate fishing in general just like Waikiki allowing fishing on the East and North shores of Oahu during odd numbered years and allow fishing on the West and South shores during even numbered years.
9. Should shut fishing down for 2 years on Oahu and open it for a year or two and repeat the cycle every one or two years.
10. Would like regulations based on science rather than opinion. We have to have confidence in the credibility of the science

that determines the regulations and decision-making. Otherwise, abuse and disrespect for the regulations will undermine our good intentions.

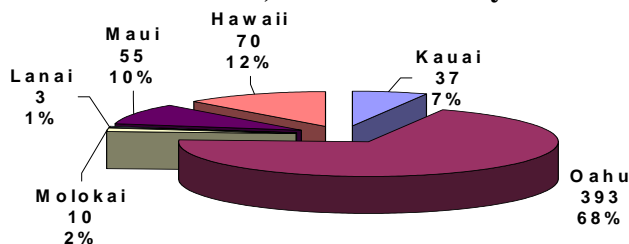
11. Why are nets banned on the south shore of Oahu where it is the most polluted instead of the North and West shores which are cleaner and healthier?
12. Should create an Ulua/papio task force and bring Pacific Islands Fishing Group (PIFG) to work with them and the casting clubs. This open dialogue is good as compared to meetings that are not good where DAR only records comments and answers no questions.
13. Introducing cultured moi & papio will offset the balance of our resources increasing competition for food and space and eventually causing the adult populations to crash. There needs to be consideration on the interaction with other species. The habitat can only support so much fish.
14. Ban all netting. It's taking away all our fish.
15. Eradicate taape.
16. The survey needs to be addressed to full-time fishermen and weekend warriors. The volunteer taggers alone cannot provide enough information.
17. Practice catch & release and take only what you need.
18. Get rid of gps and save the onaga opakapaka, ehu, etc.

Moi Survey Results:

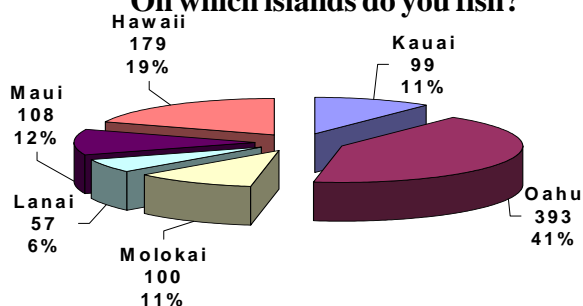
MOI ANGLERS' SURVEY PROFILE

Over 2700 surveys regarding the moi fishery were mailed out to volunteer anglers statewide with the Ulua Tagging Project and Moi Tagging Program as well as to commercial fishermen that fish for moi. Approximately 21% or 571 anglers responded for the moi survey.

As a Hawaii resident, which island do you reside on?



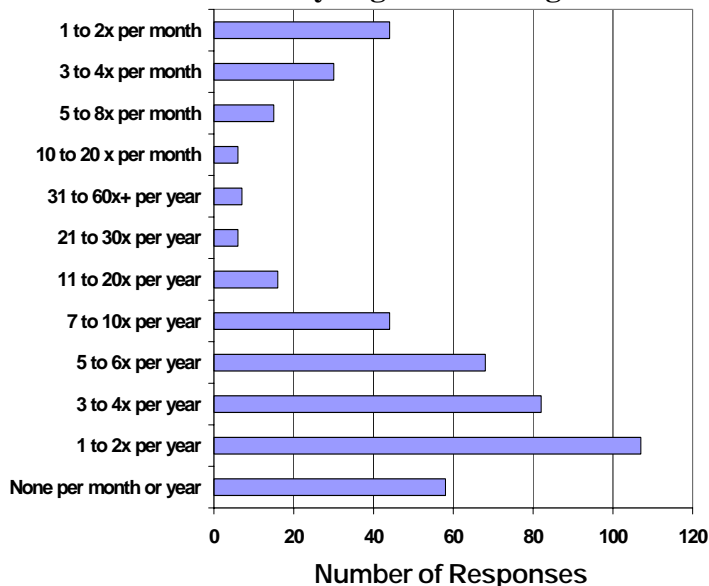
On which islands do you fish?



Are you a registered Moi tagger (Moi Tagging Project participant)?

YES: 41 NO: 513

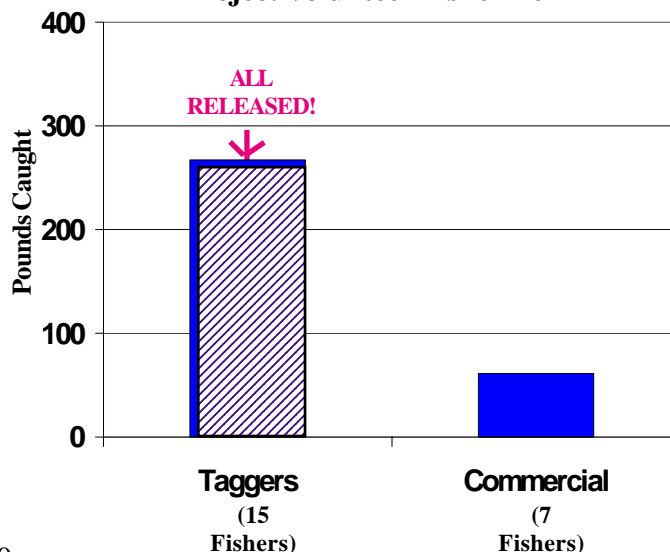
How often do you go Moi fishing?



Moi fishers by Island

	Recreational	Commercial	Subsistence
Oahu	334	3	70
Hawaii	53	2	26
Maui	43	0	10
Lanai	3	0	0
Molokai	4	0	4
Kauai	29	1	11

Figure 10. Pounds of Moi Caught in 2007 by Oahu Commercial Fishermen and Oahu Moi Tagging Project Volunteer Fishermen



The graph in Figure 10 is based on the number of volunteer anglers who tag moi for the Moi Tagging Program on the island of Oahu. It is significant to note that the Oahu moi taggers tagged and released in excess of over 200 lbs. of moi compared to less than 70 lbs of moi harvested by Oahu commercial fishers. It would be interesting to see whether this trend also applies to the neighbor islands.

REVISED BAG LIMITS FOR MOI

Presently the bag limit for moi is 15 per person per day measuring 11 inches fork length and larger. Many of the survey participants clearly stated that they never reach this bag limit and were in favor of lowering the bag limit. A revised proposal setting a bag limit of 3 to 5 moi per person per day measuring 11" FL or larger. is under consideration.

Out of 591 responses, 426 (72%) said YES to a revised bag limit of 3 to 5 moi per person per day, 132 (22%) said NO to this bag limit for various reasons (see other comments regarding moi bag limits) and 33 (6%) had NO OPINION (see Figure 11).

Comments from those that responded YES to the proposed revised bag limit of 3 to 5 moi per person per day:

- 1) Moi has always been an uncommon fish and harder to catch than some other types of fish. Moi is scarce under the current bag limit. New bag limit will allow more people to have moi to eat.
- 2) There is a decrease in the moi population over the years. We are overfishing the resources. We need to see more moilli and rebuild the population.
- 3) Everyone should only catch what they can eat otherwise the rest would get wasted by freezer burn.
- 4) 3 to 5 moi per person per day is more than enough for a recreational fisher to eat or to feed their family. More than that would deplete the supply. The smaller the bag limit, the more moi for everyone.
- 5) Hard to find legal size moi on Oahu. The revised bag limit would help to conserve the fishery and help make the moi population more stable - we want to see larger moi!
- 6) The current bag limit is too excessive. No wonder no more moi nowadays! I don't know of anyone who has ever caught their bag limit of 15.
- 7) Nets like thrownets and gill nets wipe out the fishery. How will you enforce the revised bag limits for netters? Nets catch more than 3 to 5 moi at a time and damages the catch. Releasing damaged fish if you're over the bag limit is not practical.
- 8) Revised bag limit unreasonable for commercial sale. Commercial and subsistence fishers should apply for a permit and have different restrictions e.g. larger bag limit, larger minimum size, etc.
- 9) Revised bag limits are good if they are enforced.
- 10) The revised bag limits would fit the way that I fish. I hope that when the moi fishery is recovered, a revised increase in the bag limit would be possible.
- 11) Cannot rely solely on the moi project to replenish the stocks. They must also restock themselves in the wild.
- 12) Since the moi is a protandrous fish (begins life as a male and changes to a female when they get bigger), this should be incorporated into the bag limit.

Comments from those that responded NO to the proposed/revised bag limit of 3 to 5 moi per person per day.

- 1) The current bag limit of 15 moi per person per day is working. Leave it alone since it also includes commercial take. Moi is a hard fish to catch and don't bite everyday anyway. Don't penalize exceptional anglers.
- 2) Instead of a bag limit, the minimum size should be increased. Those little ones don't spawn.
- 3) Revised bag limit is too little. Not enough to feed my family.
- 4) Keep the current bag limit of 15 and propose gear restrictions instead. Take away nets and have hook and line only for moi.
- 5) Keep current bag limits and have a shorter moi season of 6 months instead of the current 9 month open season.
- 6) Current bag limit is fine because I see tons of moi. I've seen an increase in the numbers of moi in the ocean probably due to decreased fishing pressure and aquaculture which helps the moi population. There are now bigger moi in shallow water.
- 7) If the current regulations were enforced, it wouldn't be necessary to revise the bag limit.
- 8) It would be a waste of time, gas, food, and money to pack up and go moi fishing if I'm only going for 3 to 5 moi.
- 9) Environmental conditions have more of an impact on the moi fishery than the catch or take of it for fishing.

Comments from those that had NO OPINION on the proposed revised bag limit of 3 to 5 moi per person per day.

- 1) In 15 years, I've never caught more than 10 moi per day so 3 to 5 per day would not affect me much. Is there science to support the 3 to 5 limit?
- 2) How do you justify 3 to 5 per person per day? Is the summer kapu not sufficient?
- 3) Don't know much about and do not fish for moi - no expertise.

Figure 11. Response to Revised Moi Bag Limit by Island

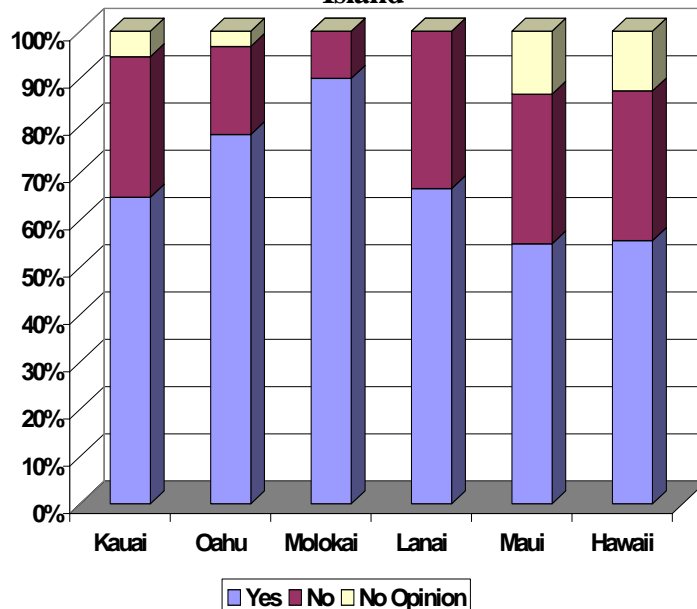
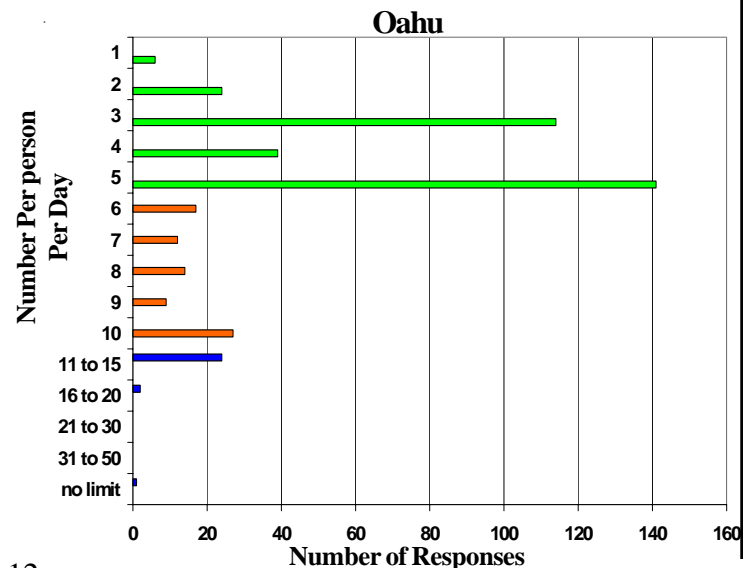
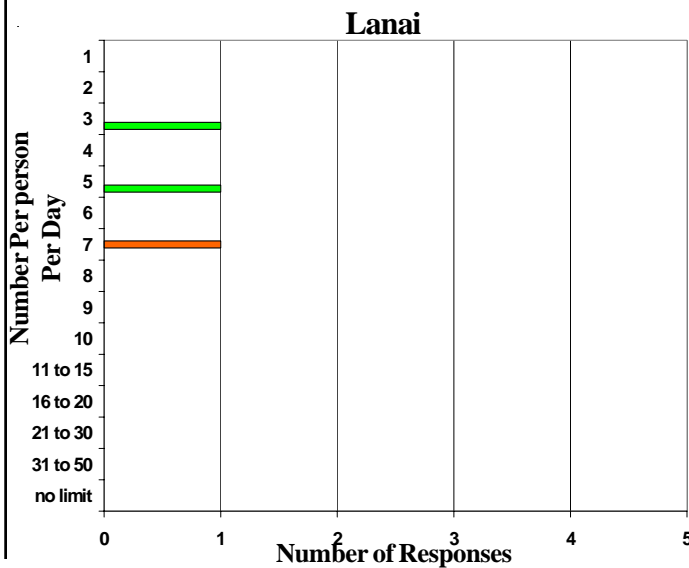
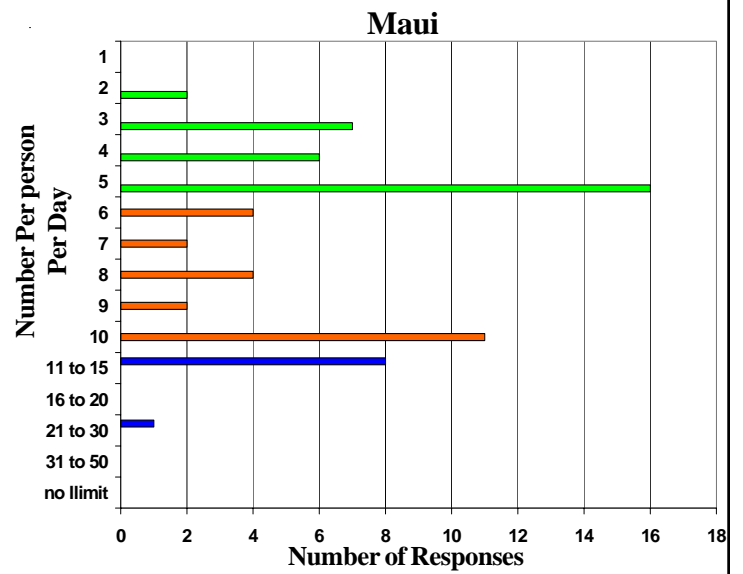
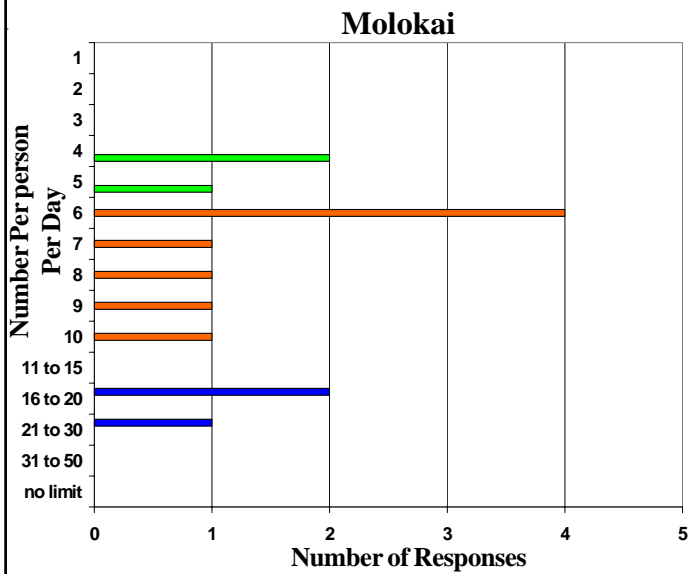
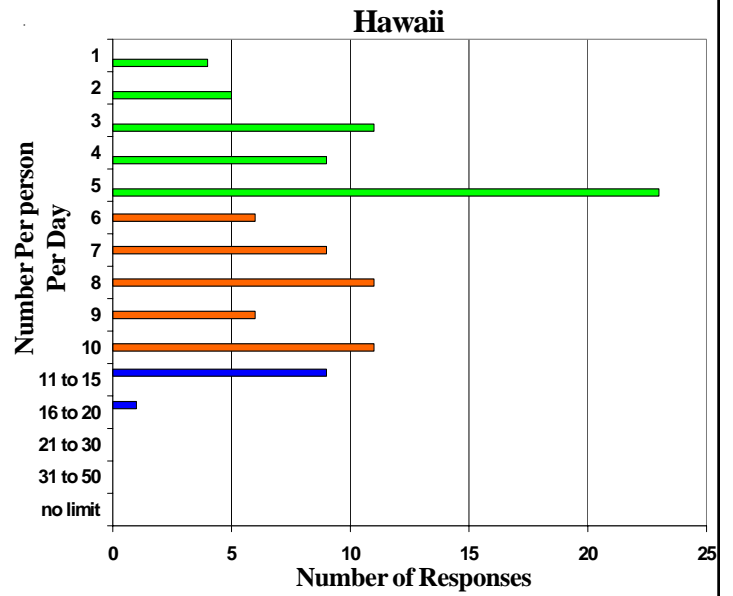
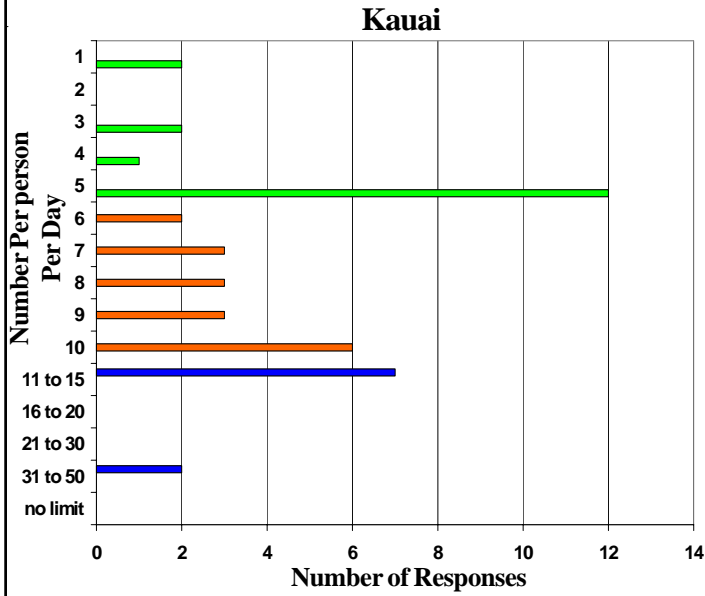
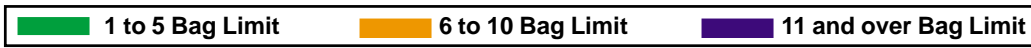


Figure 12. Alternate Suggestions for Moi Bag Limit By Island



IS THE 11 INCH MINIMUM SIZE INCREASE FOR MOI WORKING?

Surveyed anglers were asked if the change in minimum size from 7 inch TL to 11 inch FL has helped to increase the average size and numbers of moi being caught (see Opinion poll results below). A number of measures have taken place to help sustain Hawaii's moi fishery. These include:

1981 - Statewide bag limit of 15 moi per person per day

1986 - No taking of moilii or moi measuring less than 7 inches total length

1999 - DAR Moi Stock Enhancement Program begins - introducing cultured moi into the ocean

2002 - Minimum size increase from 7" total length to 11" fork length

ADDITIONAL CONCERNS & COMMENTS FOR MOI

ENFORCEMENT

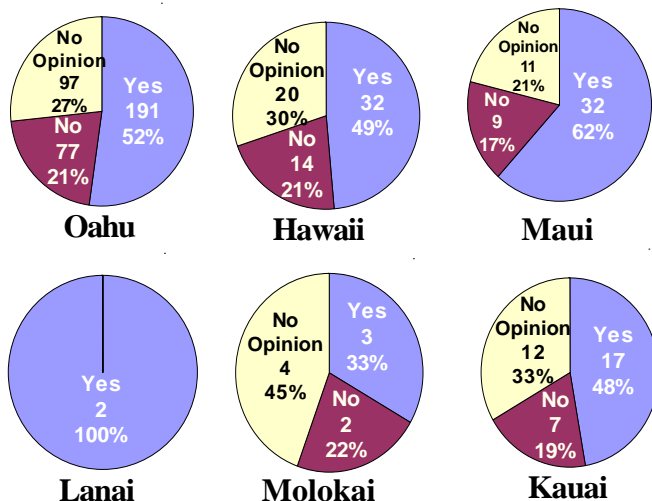
With regard to the moi fishery, most anglers feel that full enforcement of the current moi regulations is the biggest problem. It would help if all anglers uphold the honor system and follow the regulations, but this is not the case. Many still see other anglers take undersized moi (moi measuring less than 11 inches FL) and who are blatant and know that they won't be caught. All of these "bandit" anglers are hurting the moi fishery for everyone and should be caught and prosecuted with stiffer fines which should be steep enough to make people think twice about taking undersized moi. But all the regulations and stiff penalties in the world will not make a difference if they are not strictly enforced. Why punish the good guys with more regulations and reward the bad guys for taking undersized fish?

We need more education about the moi fishery along with the regulations needed to sustain the fishery. There should be more outreach through the media and community groups. Education and enforcement go hand in hand. Enforcement needs to show their presence so that people feel their support.

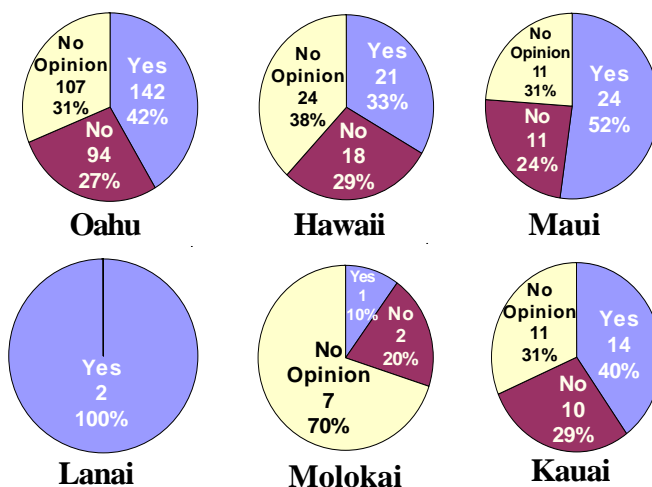
ADDITIONAL SUGGESTIONS FOR REGULATING MOI FISHERY

- 1) Propose gear restrictions to have moi as a hook & line fishery ONLY and ban the taking of moi with any type of net (thrownet, gillnet, etc.)
- 2) Ban all nets except thrownet for moi.
- 3) Restrict nets by enforcing a larger size eye mesh of 3 inches for fence and surround nets which can only be used every 5 years; limit use of thrownet to every other year.
- 4) Look into establishing a slot size limit for moi between 9" to 15" FL to allow larger ones to produce eggs.
- 5) Have a 5 year ban on the moi fishery to let it rest.
- 6) Bag limit should be seasonal or yearly. You should be given a chance to stock up when you're able to catch 15 to 20 in one day and not catch any the rest of the year.
- 7) Ban night time spearing.
- 8) Believe each island should have a different size and number limit due to the moi resources being different on each island and the different population per capita.
- 9) Increase the minimum size; 11" FL too small.
- 10) Should rotate seasonal closures with different areas.
- 11) Need to have size and bag limits backed up by science.

Opinion by Island Regarding if Change in Minimum size from 7 inches Total Length to 11 inches Total Length for Moi has helped to increase the average sizes of Moi being caught



Opinion by Island Regarding if Change in Minimum size from 7 inches Total Length to 11 inches Total Length for Moi has helped to increase the numbers of Moi being caught



12) Closed season should be extended from May to August.

13) Limit lay net to only 25 ft.

DAR

1) Appreciate efforts to sustain the moi fishery in Hawaii. Keep up the good work! Mahalo for providing this survey to generate feedback and discussion.

2) We need an Administration that understands how beneficial and important projects like the Moi Tagging and Stock Enhancement Project are to local fishermen.

3) What is the justification for the new rules? Is it based on science or Administration just making a good guess as to what would benefit the fishery for the local people? Those that aren't from Hawaii and don't understand the local fishery should not be making regulatory decisions.

4) Stop changing the minimum size and limits. Do the research first, do it right and leave it alone! What kind of science backs up the 15 bag limit for moi?

5) We need better resource monitoring.

6) What is the maximum sustainable yield for moi?

MOI STOCK ENHANCEMENT PROGRAM

1) The stocking program has helped a lot. We have more moi because of the stocking program. Would like to see more.

2) More money and support should be given to the State for fish stocking programs.

3) When releasing stocked moi, should keep the place and time a secret so that people can't go and catch all the tagged moi.

4) Oahu anglers see an increase in the amount of moi caught in areas such as Ala Moana, Waikiki, Ewa Beach, Kailua, etc. Also seeing a lot of baby moi too. There is choke moilii around Oahu's south shore.

OBSERVATIONS & FACTORS AFFECTING THE MOI RESOURCES

1) In the Ewa area on Oahu, the moi resources seem to run on a cycle. There are good and bad years where the moi come and go showing that the moi resources experience cyclic changes.

2) On Oahu, starting to see a comeback of the moi fishery with more moi and larger sizes. Seeing more now than 10 years ago.

3) There is an increase in moi in the North Shore area on Oahu due to seeing others and myself release undersized moi and take only what we need - not because of the increase in the minimum size to 11" FL.

4) As a commercial diver, I see a lot of moi diving. Lots of larger ones are further offshore. They don't stay in the same area very long. They get spooked very easily and will move.

5) It's not changing the minimum size and bag limits that hurts the moi fishery - it's the environmental impacts from construction, runoff, development, water pollution, etc.

6) Each island is different when it comes to areas where there's moi. On Kauai there are many sandy beaches and places for the moi to spawn and live. They hide in the murky water. On Oahu there are fewer sandy beaches and more people making it harder for moi to reproduce and grow since most anglers cast from shore. There are also more thrownet fishermen. There is a greater amount of moi observed on Kauai and Maui than on Oahu.

7) On the Big Island clean water doesn't seem to help the moi population. Living on the Big Island we had way more moi in the plantation days when the water was dirty. There was also more nehu, aholehole, papio, etc. Restore the water from the rivers. This will do more for the moi fishery than more rules and regulations.

8) Forget the minimum size changes. Instead, stimulate the growth of food for the moi like crabs, fish and shrimp to have a healthy moi population by balancing the food chain.

All Other issues & suggestions:

1) The cultivation of moi should not be for the sole purpose of selling.

2) No more introductions like the taape.

3) No limits for native Hawaiians -we need to feed ourselves.

4) Proposal to close the area from the Natatorium to the Diamond Head Lighthouse.

5) Implement a license fee.

6) Outlaw commercial fishing.

7) Designate oio as a game fish.